

Transmittal Letter to the United States
Designated/Elected Office (DO/EO/US)

10/031770

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FORM PTO-1390

JCO7 Rec'd PCT/PTO 23 JAN 2002

Docket No. : **BM-78PCT**
U.S. Application No. :
International Application No. : **PCT/EP00/06928**
International Filing Date. : **July 20, 2000**
Priority Dates Claimed : **July 27, 1999 and September 14, 1999**
Title of Invention : **EXTERNAL DOOR HANDLE MAINLY INTENDED FOR VEHICLES**
Applicant(s) for (DO/EO/US) : **Helmut Klein and Reinhard Chilla**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures 35 U.S.C. 371 (f) at any time rather than delay examination until the expiration of the applicable time limit set forth in 35 U.S.C 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed [35 U.S.C. 371(c)(2)].
 - a) ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b) ☐ has been transmitted by the international Bureau.
 - c) ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English [35 U.S.C.371(c)(2)].
7. ☐ Amendments to the claims of the International Application under PCT Article 19 [35 U.S.C.371(c)(3)].
 - a) ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b) ☐ have been transmitted by the International Bureau.
 - c) ☐ have not been made; however, the time limit for making such amendments has **NOT** expired.
 - d) ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 [35 U.S.C.371(c)(3)].
9. ☒ An oath or declaration of the inventor(s) [35 U.S.C.371(c)(4)].
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 [35 U.S.C.371(c)(5)].

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 C.F.R. 1.97 and 198.
12. ☒ An Assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ (other items or information) **Nine sheets of drawings. PTO-1449 w/ 3 references and International Search Report**

EXPRESS MAIL No.: EL 862 851 781 US Deposited: January 23, 2002

I hereby certify that this correspondence is being deposited with the United States Postal Service Express mail under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, DC 20231.



Friedrich Kueffner

January 23, 2002
Date

17. X The following fees are submitted:

BASIC NATIONAL FEE [37 CFR 1.492(a)(1)-(5)]:

- X Search Report has been prepared by the EPO or JPO..... \$ 890.00
- International preliminary examination fee paid to USPTO [37 CFR 1.482]:..... \$ 710.00
- No International preliminary examination fee paid to USPTO [37 CFR 1.482]
but International search fee paid to USPTO [37CFR 1.445(a)(2)]:..... \$ 740.00
- Neither International preliminary examination fee [37 CFR 1.482] nor
International search fee [37 CFR 1.445(a)(2)] paid to USPTO:..... \$ 1040.00
- International preliminary examination fee paid to USPTO [37 CFR 1.482]
and all claims satisfied provisions of PCT Article 33 (2) to (4):..... \$ 100.00

ENTER APPROPRIATE BASIC FEE AMOUNT: \$ 890.00

Surcharge of \$ 130.00 for furnishing the oath or declaration later than 20 30 months
from the earliest claimed priority date [37 CFR 1.492(e)]

| Claims | filed | Extra | Rate |
|--|-------|-------|-----------|
| Total Claims | 12 | -20= | x \$ 18.= |
| Indep. Claims | 1 | - 3= | x \$ 84.= |
| Multiple Dependent Claims (if applicable) + \$ 280.= | | | |

TOTAL OF ABOVE CALCULATIONS: \$ 890.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity
Statement must be filed also. [Note 37 CFR 1.9, 1.27, 1.28]

(divided by 2)

SUBTOTAL: \$ 890.00

Processing fee of \$ 130.00 for furnishing the English translation later than 20 30 months
from the earliest claimed priority date [37 CFR 1.492(f)]

TOTAL NATIONAL FEE: \$ 890.00

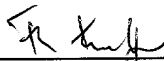
Fee for recording the enclosed assignment [37 CFR 1.21(h)] the assignment must be
accompanied by an appropriate cover sheet [37 CFR 3.28, 3.31]. \$ 40.00 per property

TOTAL FEES ENCLOSED: \$ 930.00

AMOUNT TO BE REFUNDED: Refunded \$

AMOUNT TO BE CHARGED: Charged \$

- a) X A check in the amount of \$ 930.00 to cover the above fees is enclosed.
- b) — Please charge my Deposit Account No. 11-1835 in the amount of \$ to cover the above fees.
A duplicate copy of this sheet is enclosed.
- c) X The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 11-1835. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 36 CFR 1.494 or 1.495 has not been met, a petition to revive [37 CFR 1.137(a) or (b)] must
be filed and granted to restore the application to pending status.SEND ALL CORRESPONDENCE TO: Friedrich Kueffner
342 Madison Avenue
Suite 1921
New York, NY 10173Friedrich Kueffner
Name
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Reg. No.January 23, 2002
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BM-78PCT

Applicant(s) : Helmut Klein and Reinhard Chilla
Serial No. : NOT YET KNOWN (PCT/EP00/06928)
Int. Filed : July 20, 2000
For : EXTERNAL DOOR HANDLE MAINLY INTENDED
FOR VEHICLES

Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

S I R:

In advance of the first office action, please amend the claims
as follows:

IN THE CLAIMS

Replace current claims 1 - 12 by the enclosed amended claims
1 - 12. A marked-up version of amended claims 1 - 12 is also enclosed.

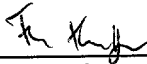
REMARKS

Claims 1 - 12 are in the application.

As a result of the foregoing amendment, the claims have been
amended to remove improper multiple dependencies.

Any additional fees or charges required at this time in connection
with the application may be charged to our Patent and Trademark Office
Deposit Account No. 11-1835.

Respectfully submitted,



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January 23, 2002
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ENCLS:

**Amended Claims;
Marked-Up Version.**

EXPRESS MAIL No.: **EL 862 851 781 US**

Deposited: **January 23, 2002**

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Friedrich Kueffner

CLEAN VERSION OF AMENDED CLAIMS

1. External door handle, in particular for vehicles, comprised of a bracket-shaped handle (10'', 10''') arranged on the outer side of the door and, at least over portions thereof, being hollow,

wherein the handle (10''; 10''') comprises at least one U-shaped shell (21; 21'') whose U-space (44, 44') serves for receiving the electronic components (16), and

wherein in the connected situation the U-shaped shell (21, 21'') is spanned at the visible side by a C-shaped front strip (20'', 20''') and is anchored thereat, wherein the two C-end sections (25''; 25) of the front strip (20''; 20''') engage an additional circumferential area of the U-shaped shell (21''; 21''') from above or from below and

the electronic components (16) are encapsulated water-tightly in a carrier open at the top.

2. External door handle according to claim 1, wherein the C-front strip (20'') covers directly with one of its C-end sections (25'') the upwardly facing U-shell opening (32) of the shell (21).

3. External door handle according to claim 1, wherein the U-shell opening (32') of the U-shaped shell (21''') is aligned relative to the front section (45) of the C-front strip (20''') and the front strip (20''') with its
4. External door handle according to claim 2, wherein the two C-end sections (25'') of the C-front strip (20'') comprise a profiled snap element (36), such as a tooth recess (36), at their inner surface (38), respectively, and that this snap element in the connected situation engages a counter snap element, such as a tooth projection (37), provided on the shell.
5. External door handle according to claim 1, wherein the C-front strip (20''; 20''') has substantially parallel extending C-end sections (25, 25'') and that, for realizing a connection, the C-end sections (25, 25'') can be snapped into place on the shell (21; 21''') by means of a lateral sliding assembly (34) of the C-front strip (20'').
6. External door handle according to claim 4, wherein the snap element or counter snap element (36, 37) has a tooth profile and that the tooth profile on its tooth flank active in the connecting sliding direction (34) of the C-front strip (20'') has a leading slant (41) for the C-end sections (25'') while in the counter direction (43) a steep tooth flank (42) is provided.

7. External door handle according to claim 1, wherein the handle (10) is a two-part (21, 22) combination of a U-shaped base shell (21) and a cover shell (22) connected with the U-legs (23) of the base shell,
- wherein between the two shells (21, 22) in the connected situation a contact seam (18) results at the visible side and the hollow space (14) between the two shells (21, 22) serves for receiving the electronic components (16), wherein the C-end sections (25) of the front strip (20) have hook-like angled C-ends (27),

wherein

in the connected situation, the two shells (21, 22) are spanned at the visible side by the front strip (20), wherein the two C-end sections (25) of the front strip (20) engage from above or from below a circumferential area of the shells (21, 22), respectively, and are arranged in an upper groove (29) of the cover shells (22) and a lower groove (28) of the base shell (21) in a sunk arrangement.

8. External door handle according to claim 7, wherein the base and the cover shells (21, 22) in the area of engagement from above or below of the front strip (20) have stepped recesses (26) and that these recesses (26) end at the upper groove (29) and the lower groove (28).

9. External door handle according to claim 1, wherein in the mounted situation the front strip (20, 20'', 20''') with its contour (30) has a flush transition into the shells (21, 22) or the shell (21, 21''').
10. External door handle according to claim 1, wherein the front strip (20; 20'', 20''') itself is provided at the visible side with a preferably let-in decorative cover (19).
11. External door handle according to claim 1, wherein the carrier for the electronic components (16) is a container (15) enclosed by walls on five of six sides, whose opening faces upwardly after mounting in the handle (10, 10'', 10''').
12. External door handle according to claim 11, wherein the container (15) is manufactured of hard plastic material.

MARKED-UP VERSION OF AMENDED CLAIMS

1. External door handle, in particular for vehicles, comprised of a bracket-shaped handle (10'', 10''') arranged on the outer side of the door and, at least over portions thereof, being hollow,

wherein the handle (10''; 10''') comprises at least one U-shaped shell (21; 21'') whose U-space (44, 44') serves for receiving the electronic components (16), and

wherein in the connected situation the U-shaped shell (21, 21'') is spanned at the visible side by a C-shaped front strip (20'', 20''') and is anchored thereat,

[characterized in

that] wherein the two C-end sections (25''; 25) of the front strip (20''; 20''') engage an additional circumferential area of the U-shaped shell (21''; 21''') from above or from below and

the electronic components (16) are encapsulated water-tightly in a carrier open at the top.

2. External door handle according to claim 1, [characterized in that] wherein the C-front strip (20'') covers directly with one of its C-end sections (25'') the upwardly facing U-shell opening (32) of the shell (21).
3. External door handle according to claim 1, [characterized in that] wherein the U-shell opening (32') of the U-shaped shell (21''') is aligned relative to the front section (45) of the C-front strip (20''') and the front strip (20''') with its
4. External door handle according to claim 2, [characterized in that] wherein the two C-end sections (25'') of the C-front strip (20'') comprise a profiled snap element (36), such as a tooth recess (36), at their inner surface (38), respectively, and that this snap element in the connected situation engages a counter snap element, such as a tooth projection (37), provided on the shell.
5. External door handle according to [one or several of the claims 1 to 4, characterized in that] claim 1, wherein the C-front strip (20''; 20''') has substantially parallel extending C-end sections (25, 25'') and that, for realizing a connection, the C-end sections (25, 25'') can be snapped into place on the shell (21; 21''') by means of a lateral sliding assembly (34) of the C-front strip (20'').

6. External door handle according to [claim 4 and 5, characterized in that] claim 4, wherein the snap element or counter snap element (36, 37) has a tooth profile and that the tooth profile on its tooth flank active in the connecting sliding direction (34) of the C-front strip (20'') has a leading slant (41) for the C-end sections (25'') while in the counter direction (43) a steep tooth flank (42) is provided.

7. External door handle according to claim 1, [characterized in that] wherein the handle (10) is a two-part (21, 22) combination of a U-shaped base shell (21) and a cover shell (22) connected with the U-legs (23) of the base shell, wherein between the two shells (21, 22) in the connected situation a contact seam (18) results at the visible side and the hollow space (14) between the two shells (21, 22) serves for receiving the electronic components (16), wherein the C-end sections (25) of the front strip (20) have hook-like angled C-ends (27),

[characterized in that] wherein

in the connected situation, the two shells (21, 22) are spanned at the visible side by the front strip (20), wherein the two C-end

sections (25) of the front strip (20) engage from above or from below a circumferential area of the shells (21, 22), respectively, and are arranged in an upper groove (29) of the cover shells (22) and a lower groove (28) of the base shell (21) in a sunk arrangement.

8. External door handle according to claim 7, [characterized in that] wherein the base and the cover shells (21, 22) in the area of engagement from above or below of the front strip (20) have stepped recesses (26) and that these recesses (26) end at the upper groove (29) and the lower groove (28).
9. External door handle according to [one of the claims 1 to 8, characterized in that] claim 1, wherein in the mounted situation the front strip (20, 20'', 20''') with its contour (30) has a flush transition into the shells (21, 22) or the shell (21, 21''').
10. External door handle according to [one or several of the claims 1 to 9, characterized in that] claim 1, wherein the front strip (20; 20'', 20''') itself is provided at the visible side with a preferably let-in decorative cover (19).

11. External door handle according to [one or several of the claims 1 to 10, characterized in that] claim 1, wherein the carrier for the electronic components (16) is a container (15) enclosed by walls on five of six sides, whose opening faces upwardly after mounting in the handle (10, 10'', 10''').
12. External door handle according to claim 11, [characterized in that] wherein the container (15) is manufactured of hard plastic material.

9pts
Art. 34

10/031770
10 Repl. 153870 23 JAN 2002

Translated Text of Amended Pages of WO 01/07736 (PCT/EP00/06928)

External Door Handle Mainly Intended for Vehicles

The invention relates to an external door handle of the kind described in the preamble of claim 1 (DE 197 45 149 A1).

The known handle is provided with a hollow space for receiving electronic components. For this reason, the known handle was configured of two shells comprised of a C-shaped base shell and a C-shaped cover shell connected with the leg ends of the base shell. A disadvantage of such an arrangement is that the terminal snap-on connection of the shells does not provide a sufficient strength for the use as a door handle and that on the front side a contact seam is formed which is visually disruptive because at this visible location manufacturing tolerances that are present become particularly obvious. Moreover, this seam also provides the possibility that dirt can deposit on the front side and that moisture can penetrate into the interior space between the shells so that the components therein are impaired in their function. Also, the embedding of the electronic components in the upright inner shell by means of a synthetic resin is not a permanent solution because the resin will begin to creep over time.

It is an object of the invention to develop a reliable external door handle of the kind mentioned in the preamble of claim 1 which prevents the aforementioned disadvantages and generates an especially good and, if needed, detachable connection between the two shells. This is achieved according to the invention by the measures defined in claim 1 which have the following special meaning.

The invention however is also of special importance when, in a modification according to claim 7, the handle is comprised of two shells, i.e., a U-shaped base shell and a cover shell between which the hollow space is formed. In this case, the C-shaped front strip acts like a clamp which presses the cover shell against the U-shaped base shell. This clamp-like connection is provided in addition to the usually already present connections between the two shells. In the case of this clamp connection of the two shells the contact seam between the two shells at the visible side is covered in any case. Even though this contact seam is still present, the access of soil or moisture into the interior of the space between the shells is made significantly more difficult. A type of labyrinth course is present. The detachable connection, if needed, is provided as a result of the C-ends snapped into place in the grooves at the top and bottom sides.

A further advantageous configuration is comprised of a U-shaped base shell which in the direction of the front strip to be applied has a U-shaped opening. Into this U-opening the carrier with the electronic components is slipped with precise fit. The front strip snapped into place on the base shell covers in this connection with its front section the U-opening of the base shell with the carrier positioned therein.

The carrier can be embodied as a container of hard plastic material which is open at the top so that from here during manufacture of the handle the electronic device can be inserted into the container. In order to protect the electronic device against sliding and exposure to media (for example, water), it is encapsulated in this container, for example, with a soft plastic

material. In this connection, the opening of the container at the top is an advantage because the open top side of the container is planar, and a uniform filling of the container with the potting compound can be realized accordingly.

Further measures and advantages of the invention result from the dependent claim, the following description, and the drawings. In the drawings, the invention, in the form of two embodiments, and the prior art are illustrated. It is shown in:

- Fig. 1 for a two-shell first embodiment of the invention a plan view onto the handle in the viewing direction of arrow I of Fig. 2;
- Fig. 2 on a greatly enlarged scale a schematic cross-section of the handle along the section line II-II of Fig. 1;
- Fig. 3 in a representation corresponding to Fig. 2, a second embodiment of the invention embodied only with a single shell;
- Fig. 4 in a representation corresponding to Fig. 2, the appearance of the known handle along the section line IV-IV of Fig. 5; and
- Fig. 5 a front view of the known handle illustrated in Fig. 4 in a viewing direction of numeral V of Fig. 4;

Fig. 6 in a representation corresponding to Fig. 2, a third embodiment of the invention embodied only with a single shell in a section according to VI-VI of Fig. 10;

Fig. 7 for a single-shell embodiment of the invention according to Fig. 6 a plan view onto the handle in the viewing direction of arrow VII of Fig. 6;

Fig. 8 a section according to VIII-VIII of Fig. 7 with the projection of a rearview of the front part of the handle;

Fig. 9 a section according to IX-IX of Fig. 8;

Fig. 10 a front view of the third embodiment of the invention embodied only with a single shell.

In the drawings only the bracket-shaped handle 10 of the external door handle appearing on the external side is illustrated. This handle, in the illustrated embodiment a so-called "pull handle", is moveably supported with its two handle ends 11, 12 in a base part, not illustrated in detail. This base part is generally provided on the inner side of the door or of the skin of the door. In addition to the handle 10, as illustrated in dash-dotted lines in Fig. 1, a so-called "cylinder column" is provided in which a closing cylinder can be received, if needed. The cylinder column 13 does not take part in the movement of the handle 10.

The handle 10 is provided with a hollow space 14 illustrated in Fig. 2 in which a carrier 15 for electronic components is arranged. The electronic components 16 can be a ferrite rod acting as an

antenna. For generating the hollow space 14 and for introducing the electronic components 16 and their carrier 15, the handle 10, as illustrated in the cross-section of Fig. 2, is of a two-shell configuration.

The latter is also true for the prior art which is illustrated in Figs. 4 and 5. Here, the same reference numerals as in the first embodiment are used for identifying corresponding components but, as a differentiation, they are provided with a prime (apostrophe). The prior art handle 10' is comprised of two shells 21', 22' for producing the prior art hollow space 14'. These include a U-shaped base shell 21' whose two U-legs 23' are connected by means of a cover shell 22'. For this purpose, a snap connection 24' can be provided because both shells 21', 22' are made of plastic material which has a sufficient elasticity. In the connecting situation according to Figs. 4 and 5 at the visible side 17' of the handle 10 a contact seam 18' results through which moisture or dirt can enter the hollow space 14' via the engaged snap connection 24. The visible side of the handle 10' can be provided with an optionally metallic decorative cover 19'.

The handle 10 according to Figs. 1 and 2 of the invention has a comparable configuration as regards the above description. The components already described in connection with Figs. 4 and 5 are provided with corresponding reference numerals, however, without the prime (apostrophe) being added in these figures. Accordingly, the preceding description applies. It is sufficient to only point out the differences.

In the case of the handle 10 according to the invention pursuant to Figs. 1 and 2, a C-shaped front strip 20 is used which covers the two shells 21, 22 at the visible side. The front strip 20 itself now forms the actual visible side 17 of the handle and covers the contact seam 18. The C-end sections 25 of the front strip 20 cover a circumferential area of the two shells 21, 22 where step-shaped recesses 26 are provided. Finally, the two free C-ends 27 engage an upper and a lower groove 29, 28 where they are arranged in a sunk arrangement. In the connecting situation clamping of the two shells 21, 22 by this front strip 22 is realized.

The aforementioned step 26 on the two shells 21, 22 has a step depth which corresponds approximately to the thickness of the end sections 25 of the front strip 20. This has the result that the handle 10, despite the clamped-on front strip 20, has a substantially projection-free contour 30. The front strip 20, in turn, can be provided with a decorative cover 19. Between the attached front strip 20 and the areas adjoining it and not covered of the two shells 21, 22, a "shadow seam" illustrated in Figs. 2 and 3 can be provided. This shadow seam 31 only benefits the good appearance of the handle according to the invention. This shadow seam 31 does not entail the risk discussed in connection with the known contact seam 18' of Fig. 3. Moisture penetrating in the area of the shadow seam 31 cannot reach the hollow space 14 of the handle 10 according to the invention because a closed wall is arranged therebetween in the case of both shells 21, 22.

Fig. 3 shows a second embodiment of a handle 10'' according to the invention which is a space-saving arrangement in comparison to Fig. 2. For referencing analog components, the same reference numerals

as in the first embodiment are used so that in this respect the preceding description applies. It is sufficient to point out only the differences.

According to the invention, only a single U-shell 21 is provided whose U-opening 32 between the two U-legs 23'' is covered directly by the upper C-end section 25'' of the front strip 20'' provided thereat. This upper C-end section 25'' can also be provided with an inner hollow 33. The two end sections 25'' provided here are arranged substantially parallel to one another and enable a sliding mounting of the two components 21, 20'' in the direction of the mounting arrow 35 illustrated in Fig. 3. This results in an automatic snap connection 35 which is embodied in the following way.

One snap element 36 is arranged at the inner surface 38 of the end section 25'' and is comprised of a tooth recess. The bottom area 39 of the U-shell 21 has a corresponding counter snap element 37 which is formed by a tooth projection. Correspondingly, the outer U-leg 23'' of the shell 21 on the handle 10'' has such a tooth projection 37 on the leg end 40. In this connection, the elements 37, 38 are profiled in a special way.

Accordingly, the tooth flank active in the sliding direction 34 of the front strip 20'' has a leading slant 41 against which the stretched C-end 27'' will impact during mounting. This results in a slight spreading of the two C-end sections 25'' until the tooth recess 36 snaps onto the tooth projection 37. Detachment of the two components 21, 20'' in the direction of the counter movement illustrated in Fig. 3 by the arrow 43 is not possible easily

because the oppositely positioned tooth flanks 42 active in this direction are steep. Detachment 43 is thus possible only with a corresponding spreading of the two end sections 25'' that are snapped into place.

In the second embodiment of the handle 10'' of Fig. 3, the U-space 44 of a single shell 21 is the hollow space for receiving the already described carrier 15 for the electronic components 16. In this case, the bottom area 39 and the two leg ends 40 are without steps and in areal contact with the inner surfaces 38 of the two C-end sections 25''.

In a third embodiment of the handle 10''' according to Fig. 6 and Fig. 10, a base shell 21''' has a transversely positioned U-shaped configuration whose U-opening faces the front strip 20''' provided here. The U-shape is formed of the two legs 47 and the base 48 of the base shell 21'''. Between the two legs 47 and the base 48 the U-space 44' is formed into which the carrier 15 formed as a container of hard plastic material can be introduced via the lateral U-opening 32'. In the container 15 the electronic device 16 is encapsulated with a potting compound 46 in a water-tight and impact-proof way. The container 15 is open at the top so that the electronic device during manufacture can be introduced from above into the container and the encapsulation can take place also through the upper open surface of the container. The U-opening 32' of the U-shaped base shell 21''' is covered by the front section 45 of the front strip 20'''. This front strip 20''' is secured on the base shell 21''' by means of the hook-shaped C-ends 27 engaging in the upper groove 29' and the bottom groove 28' on the base shell 21'''. In this embodiment there is no seam on the visible side 17

of the front strip 20'''. The visible shadow seam 31 in this embodiment is instead provided between the C-end sections 25 and the visible outer sides of the legs 47 of the base shell 21'', respectively.

In Figs. 7 through 9 it is illustrated in which operation the exit of a cable 50 of the handle 10''' is arranged. This holds true also in an exemplary fashion for all further embodiments of the present invention. In the base shell 21''' of the handle 10''' in the area of the handle end 12 a penetration 52 is provided through which the cable 50, which extends from the container/carrier 15, is guided. This penetration could also be provided, for example, in the positions 52', 52'', 52'''. Also, several such penetrations 52, 52', 52'', 52''' could be provided. When the handle is mounted on the door of the vehicle, the cable exit is covered and not visible to the user. The cable 50 is provided with a connecting plug 51 with which the electronic device, provided within the container 15, is connected to the electronic system of the vehicle.

List of Reference Numerals

| | |
|----------------------|--|
| 10, 10' | handle |
| 10'' | alternative to 10 (Fig. 3) |
| 10''' | alternative to 10 (Fig. 6) |
| 11, 11' | handle end of 10 or 10' |
| 12 | handle end |
| 13, 13' | cylinder column at 10, 10' |
| 14, 14' | hollow space in 10 or 10' |
| 15, 15' | carrier for 16 or 16' |
| 16, 16' | electronic components, ferrite rod |
| 17, 17' | visible side of 10 or 10' |
| 18, 18' | contact seam between 21, 22 or 21', 22' |
| 19, 19' | decorative cover |
| 20 | C-shaped front strip on 10 |
| 20'' | front strip for 10'' (Fig. 3) |
| 20''' | front strip for 10''' (Fig. 6) |
| 21, 21', 21'', 21''' | U-shell, U-shaped base shell |
| 22, 22' | cover shell |
| 23, 23' | leg of 21 or 21' |
| 23'' | leg of 21 at 10'' (Fig. 3) |
| 24, 24' | snap connection between 23, 22 or 23', 22' |
| 25 | end sections of 20 |
| 25'' | end section of 20'' (Fig. 3) |
| 26 | step-shaped recess in 21, 22 |
| 27 | hook-shaped C-end of 20 |
| 27'' | end of 25'' |
| 28, 28' | lower groove in 21, 21'' |
| 29 | upper groove in 22 |
| 29' | upper groove in 21' |

30 contour of 10
 31 shadow seam at 25
 32 opening of 21 (Fig. 3)
 32' opening of 21'' (Fig. 6)
 33 hollow of 25'' (Fig. 3)
 34 mounting arrow for 20'' (Fig. 3)
 35 snap connection of 36, 37
 36 snap element of 35, tooth recess
 37 counter snap element of 35, tooth projection
 38 inner surface of 25'' (Fig. 3)
 39 bottom area of 21
 40 leg end at end face of 23'' (Fig. 3)
 41 leading slant of 37
 42 steep tooth flank of 37
 43 mounting arrow of 20'' (Fig. 3)
 44 space in 21 (Fig. 3)
 44' space in 21'' (Fig. 6)
 45 front section of 20'''
 46 potting compound
 47 leg of 21'' at 10'''
 48 base of 21'' at 10'''
 50 cable
 51 connecting plug
 52 penetration
 52', 52'', 52''' penetrations

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Claims

1. External door handle, in particular for vehicles, comprised of a bracket-shaped handle (10'', 10''') arranged on the outer side of the door and, at least over portions thereof, being hollow,

wherein the handle (10''; 10''') comprises at least one U-shaped shell (21; 21'') whose U-space (44, 44') serves for receiving the electronic components (16), and

wherein in the connected situation the U-shaped shell (21, 21'') is spanned at the visible side by a C-shaped front strip (20'', 20''') and is anchored thereat,

characterized in

that the two C-end sections (25''; 25) of the front strip (20''; 20''') engage an additional circumferential area of the U-shaped shell (21''; 21''') from above or from below and

the electronic components (16) are encapsulated water-tightly in a carrier open at the top.

2. External door handle according to claim 1, characterized in that the C-front strip (20'') covers directly with one of its C-end sections (25'') the upwardly facing U-shell opening (32) of the shell (21).

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3. External door handle according to claim 1, characterized in that the U-shell opening (32') of the U-shaped shell (21''') is aligned relative to the front section (45) of the C-front strip (20''') and the front strip (20''') with its
4. External door handle according to claim 2, characterized in that the two C-end sections (25'') of the C-front strip (20'') comprise a profiled snap element (36), such as a tooth recess (36), at their inner surface (38), respectively, and that this snap element in the connected situation engages a counter snap element, such as a tooth projection (37), provided on the shell.
5. External door handle according to one or several of the claims 1 to 4, characterized in that the C-front strip (20''; 20''') has substantially parallel extending C-end sections (25, 25'') and that, for realizing a connection, the C-end sections (25, 25'') can be snapped into place on the shell (21; 21''') by means of a lateral sliding assembly (34) of the C-front strip (20'').
6. External door handle according to claim 4 and 5, characterized in that the snap element or counter snap element (36, 37) has a tooth profile and that the tooth profile on its tooth flank active in the connecting sliding direction (34) of the C-front strip (20'') has a leading slant (41) for the C-end sections (25'') while in the counter direction (43) a steep tooth flank (42) is provided.

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7. External door handle according to claim 1, characterized in that the handle (10) is a two-part (21, 22) combination of a U-shaped base shell (21) and a cover shell (22) connected with the U-legs (23) of the base shell, wherein between the two shells (21, 22) in the connected situation a contact seam (18) results at the visible side and the hollow space (14) between the two shells (21, 22) serves for receiving the electronic components (16), wherein the C-end sections (25) of the front strip (20) have hook-like angled C-ends (27),

characterized in that

in the connected situation, the two shells (21, 22) are spanned at the visible side by the front strip (20), wherein the two C-end sections (25) of the front strip (20) engage from above or from below a circumferential area of the shells (21, 22), respectively, and are arranged in an upper groove (29) of the cover shells (22) and a lower groove (28) of the base shell (21) in a sunk arrangement.

8. External door handle according to claim 7, characterized in that the base and the cover shells (21, 22) in the area of engagement from above or below of the front strip (20) have stepped recesses (26) and that these recesses (26) end at the upper groove (29) and the lower groove (28).
9. External door handle according to one of the claims 1 to 8, characterized in that in the mounted situation the front strip

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(20, 20'', 20''') with its contour (30) has a flush transition into the shells (21, 22) or the shell (21, 21''').

10. External door handle according to one or several of the claims 1 to 9, characterized in that the front strip (20; 20'', 20''') itself is provided at the visible side with a preferably let-in decorative cover (19).
11. External door handle according to one or several of the claims 1 to 10, characterized in that the carrier for the electronic components (16) is a container (15) enclosed by walls on five of six sides, whose opening faces upwardly after mounting in the handle (10, 10'', 10''').
12. External door handle according to claim 11, characterized in that the container (15) is manufactured of hard plastic material.

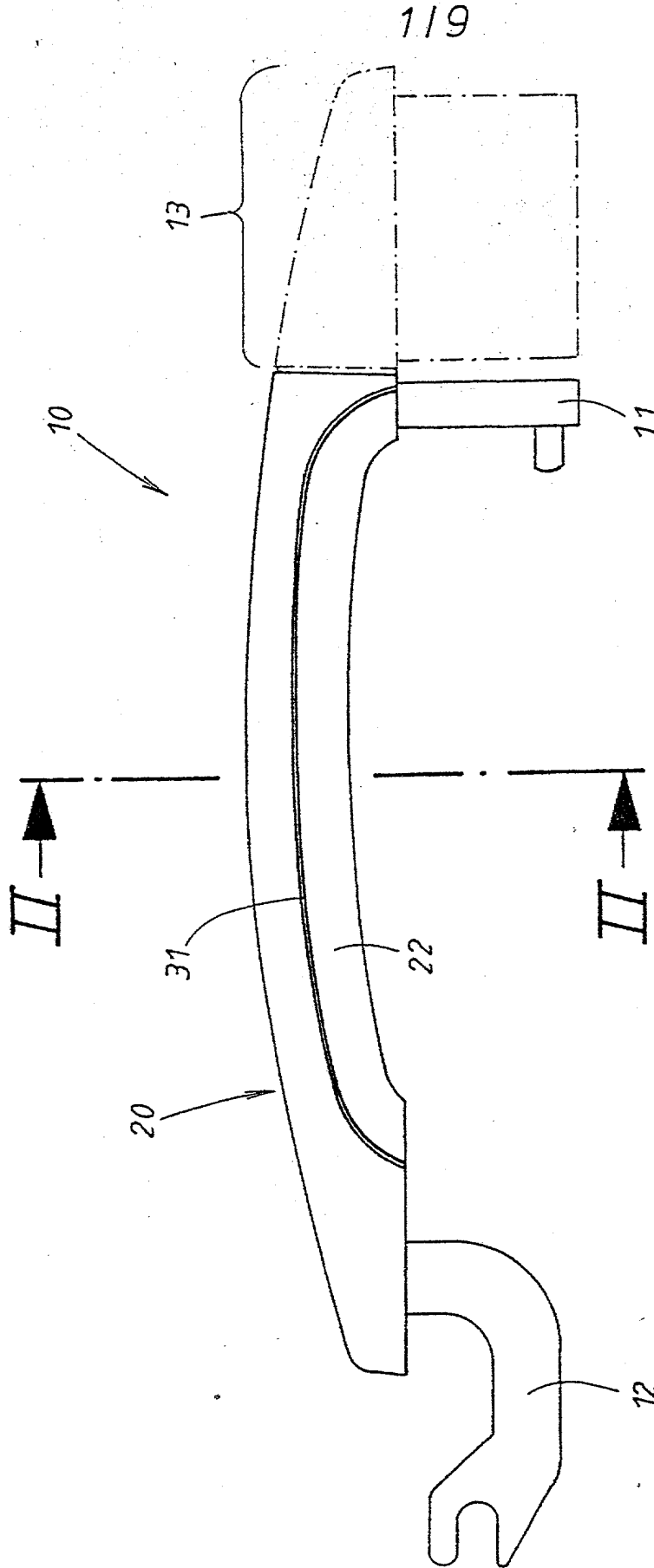


FIG. 1

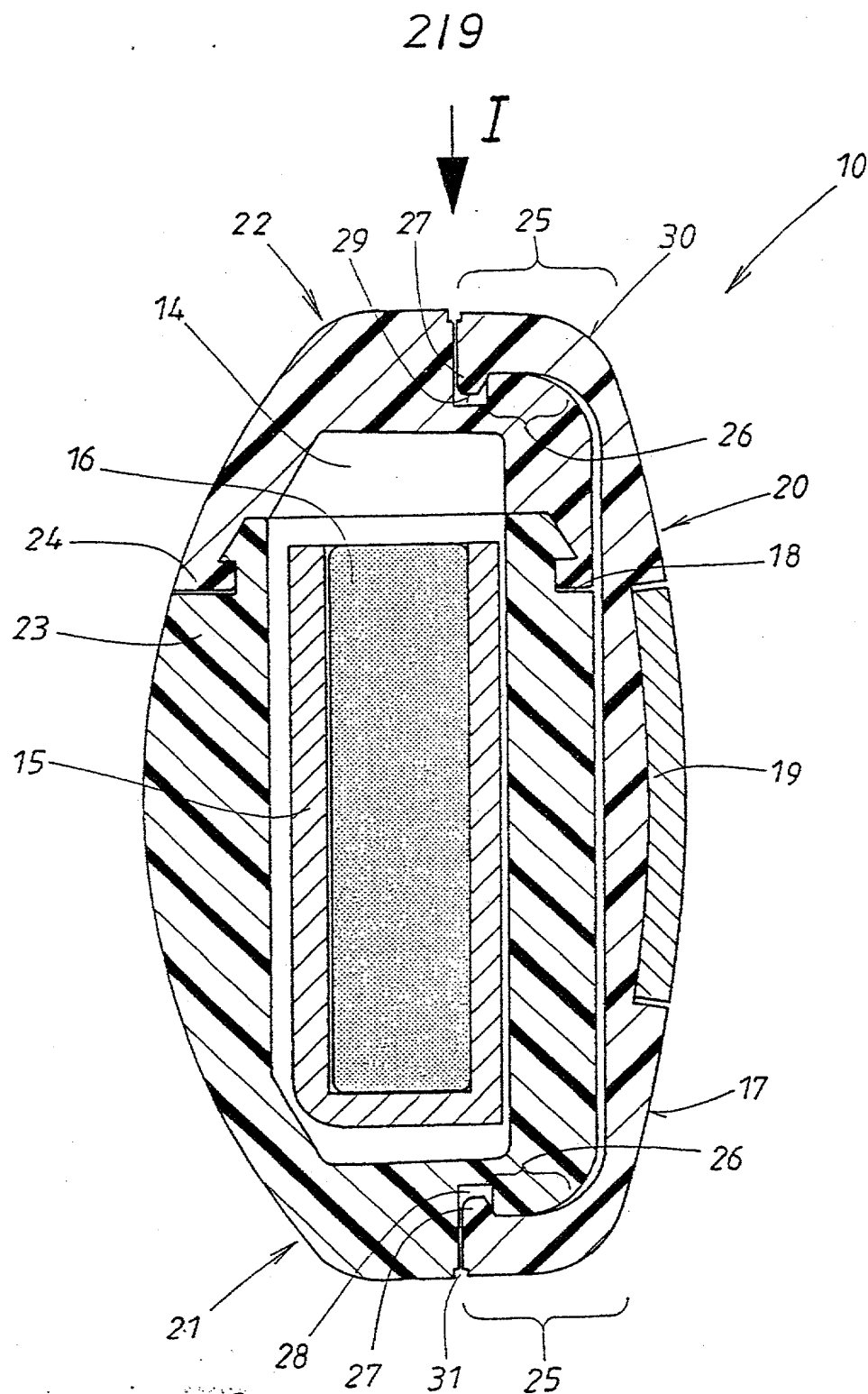


FIG. 2

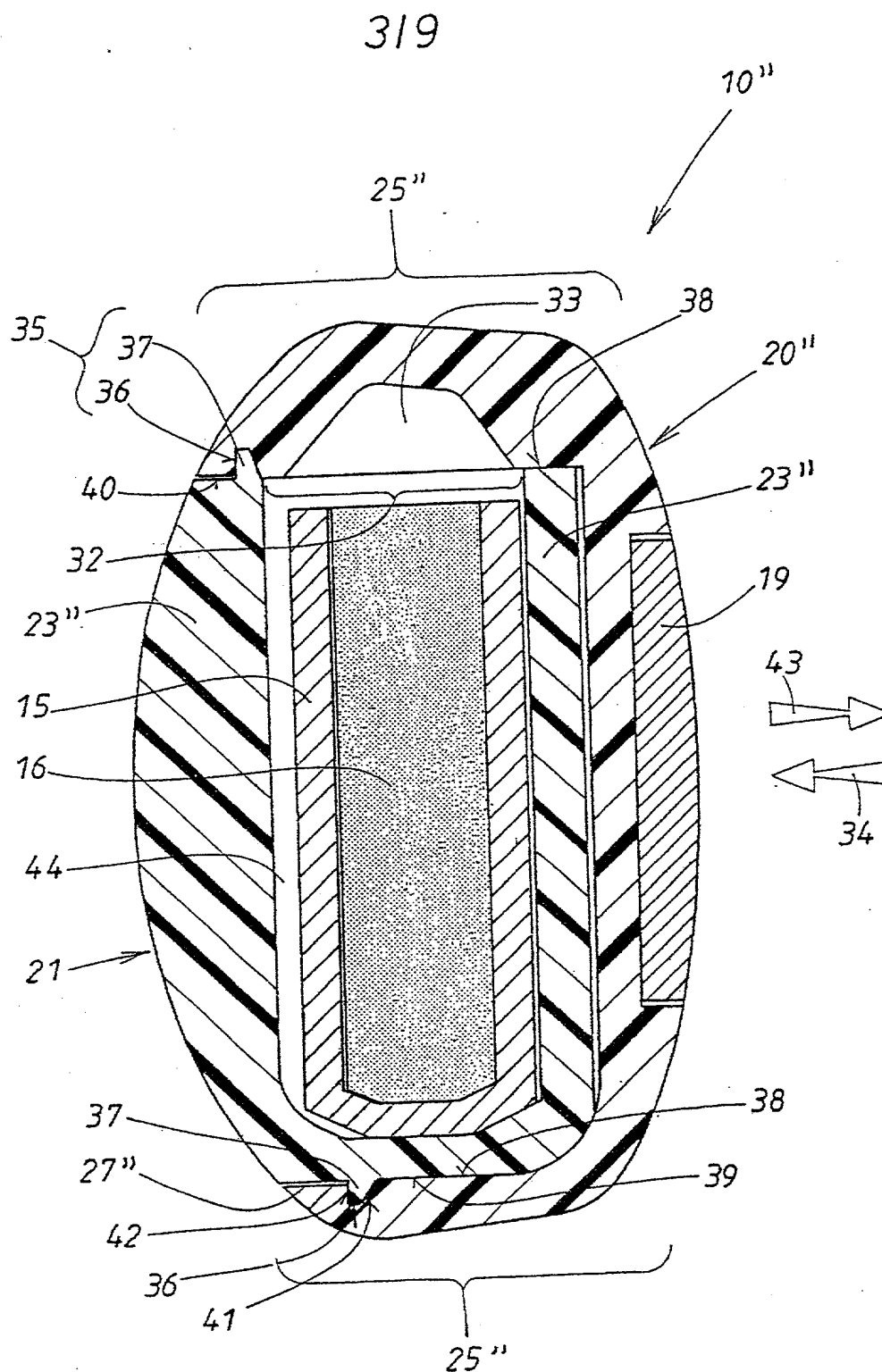


FIG. 3

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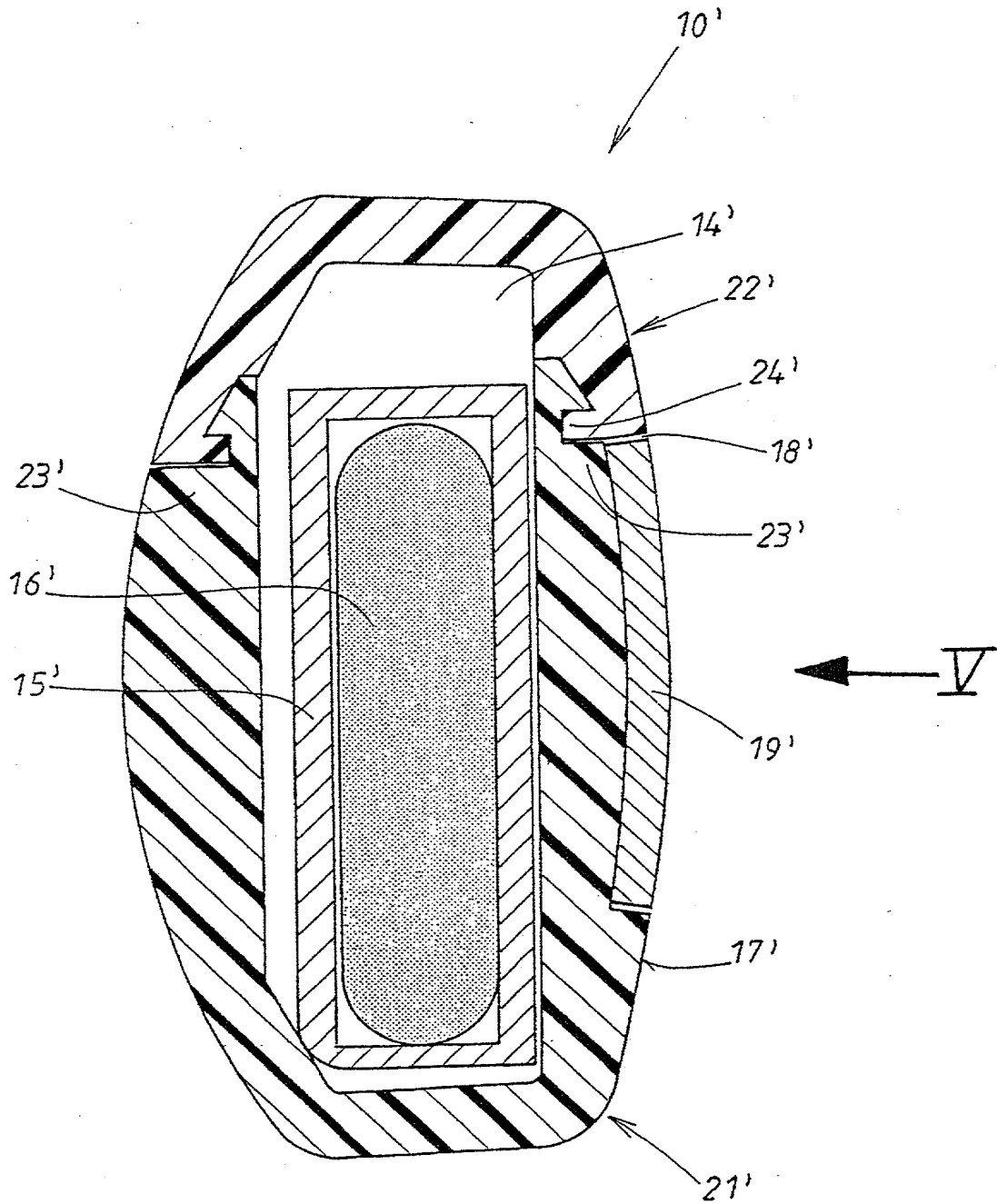


FIG. 4

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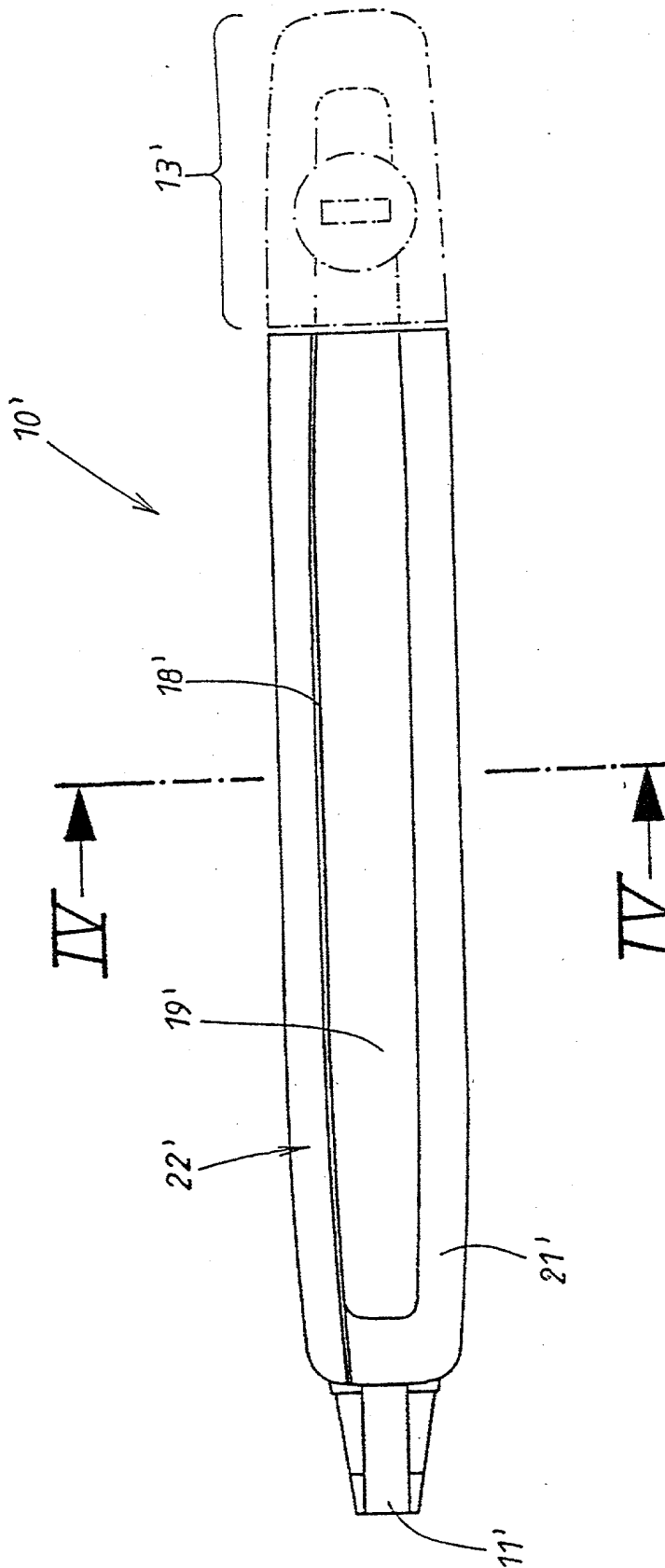
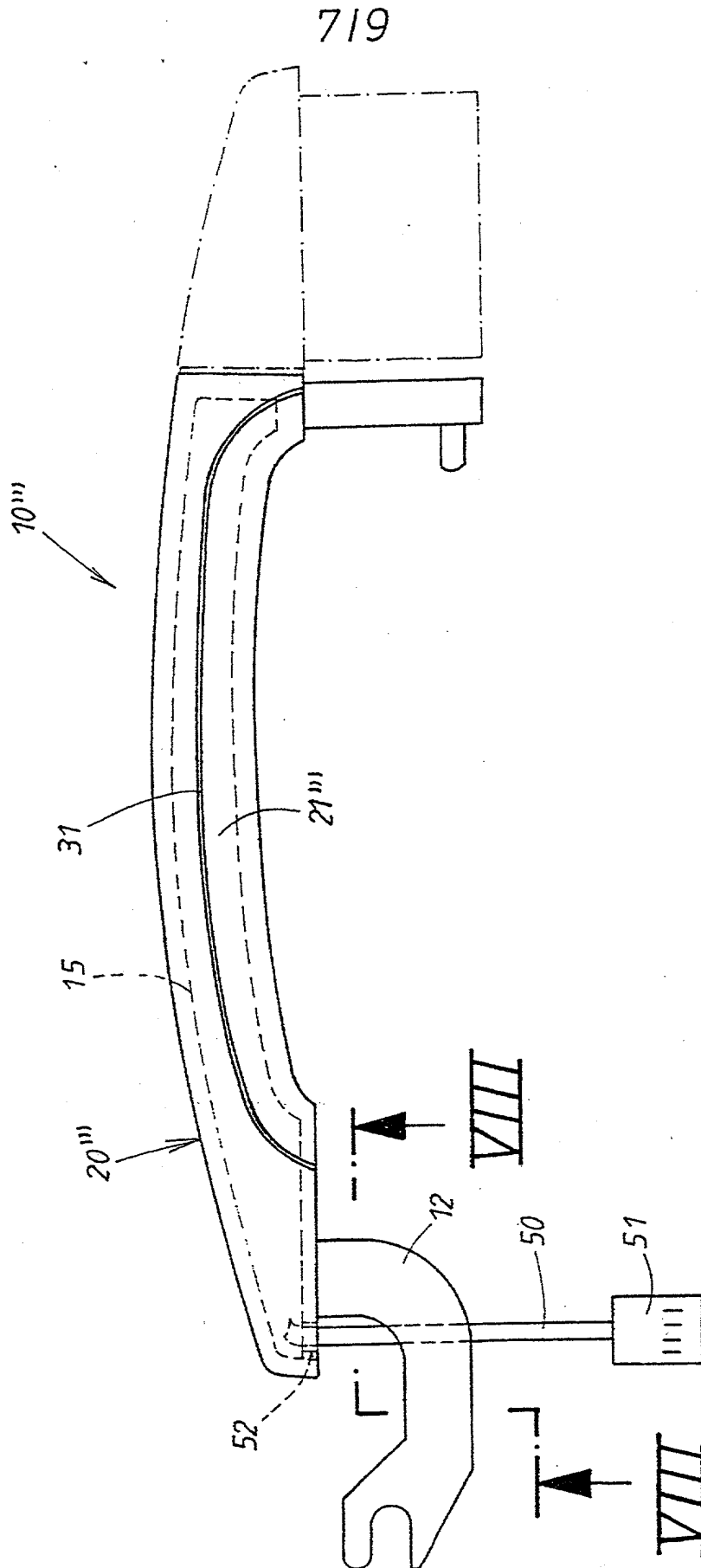


FIG. 5



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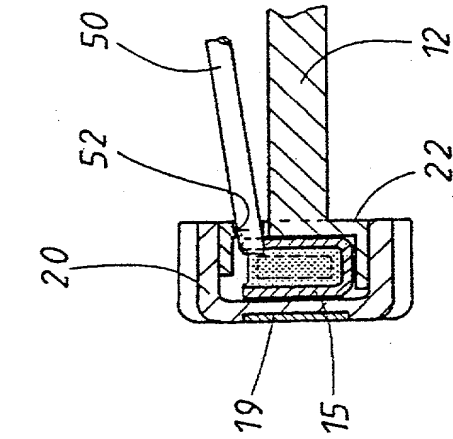


FIG. 9

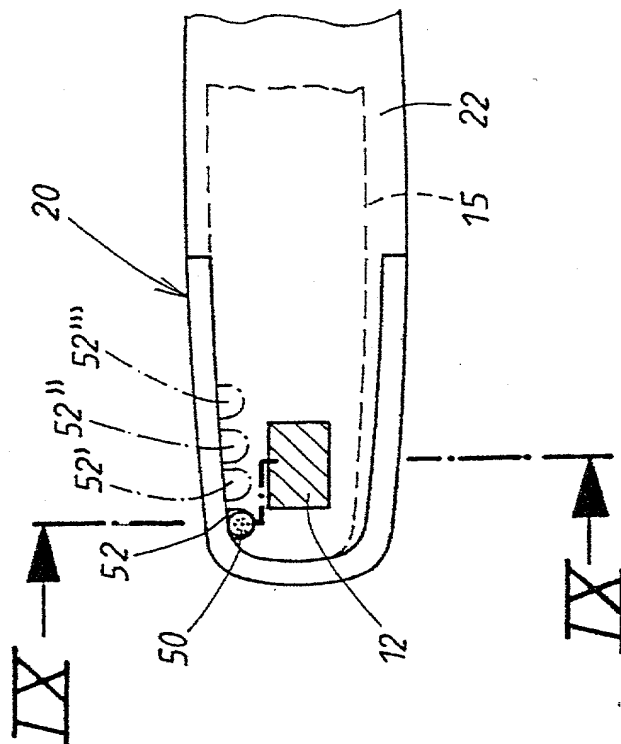


FIG. 8

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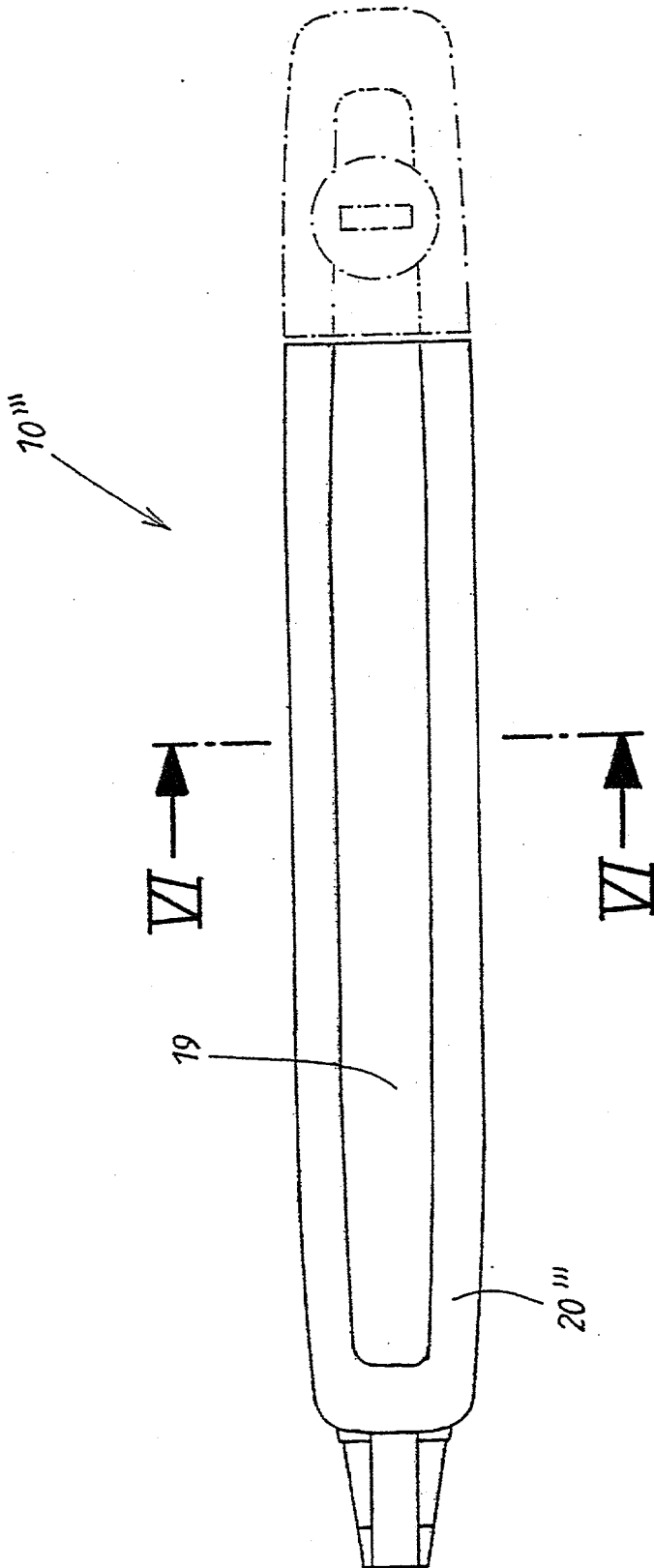


FIG. 10

COMBINED DECLARATION FOR PARENT APPLICATION AND POWER OF ATTORNEY
(includes Reference to PCT International Applications)

Attorney's Docket No.
EM-78PCT

As a below named inventor, I hereby declare that:
My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: EXTERNAL DOOR HANDLE MAINLY INTENDED FOR VEHICLES

the specification of which (check only one item below):

☐

is attached hereto.

☐

was filed as United States application

Serial No. _____
on _____,
and was amended
on _____ (if applicable).

☒

was filed as PCT international application

Number PCT/EP00/06928
on July 20, 2000,
and was amended under PCT Article 19
on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

| COUNTRY (if PCT, indicate PCT) | APPLICATION NUMBER | DATE OF FILING (day, month, year) | PRIORITY CLAIMED UNDER 35 USC 119 |
|-----------------------------------|--------------------|--------------------------------------|---|
| GERMANY | 199 35 290.9 | 27 July 1999 | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| GERMANY | 299 16 091.2 | 14 September 1999 | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |

Combined Declaration For Parent Application and Power of Attorney (Continued)
(includes Reference to PCT International Applications)

Docket No.
BM-78

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of the application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty of disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:

| U.S. APPLICATIONS | | STATUS(CHECK ONE) | | |
|---------------------------------------|------------------|-------------------|---------|-----------|
| U.S. APPLICATION NUMBER | U.S. FILING DATE | PATENTED | PENDING | ABANDONED |
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| PCT APPLICATIONS DESIGNATING THE U.S. | | | | |
| PCT APPLICATION NO. | PCT FILING DATE | U.S. SERIAL NO. | | |
| | | | | |

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration number)

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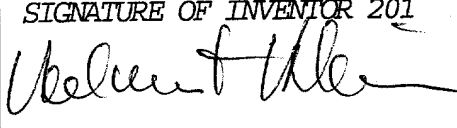
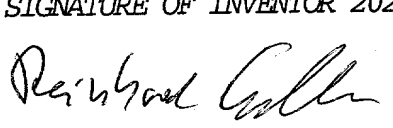
Combined Declaration For Parent Application and Power of Attorney (Continued)
(includes Reference to PCT International Applications)

Docket No.
EM-78

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

| | | |
|---|--|---------------------------|
| SIGNATURE OF INVENTOR 201  | SIGNATURE OF INVENTOR 202  | SIGNATURE OF INVENTOR 203 |
| DATE 20.12.01 | DATE 20.12.01 | DATE |